

### Claims

1. Ball retrieval device for ball games where a playing ball is attached to a rubber-elastic thread element, more particularly a rubber thread, wherein said rubber thread is retained in a thread storage device comprising the following parts:
- a spool including a recovery element capable of being tensioned through rotation of the spool,
  - 10 - a carriage that is movable in the longitudinal direction of the spool, including a device for guiding said rubber thread, and
  - a driving device of the carriage that is operatively connected to said spool in order to move the carriage in synchronicity with the rotational movement of said spool, so that the rubber thread wound up on said spool is capable of being unwound while tensioning said recovery element and of being automatically rewound on said spool while untensioning said recovery element, the winding operation being controllable by said guiding device in said carriage.
2. The ball retrieval device of claim 1, wherein said guiding device comprises a deflecting arrangement providing a deflection of the course of said thread element from the tangential direction at an angle close to 90° with respect to the longitudinal axis of said spool for winding and unwinding, to a direction essentially parallel to the longitudinal axis of said spool, by means of at least one and preferably exactly one deflecting pulley.
3. The ball retrieval device of claim 1, wherein said spool includes a groove-shaped helical recess in its surface

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whose width essentially corresponds to the diameter of said thread element such that said thread element is capable of being inserted in said helical recess essentially without play.

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4. The ball retrieval device of claim 1, wherein the bottom of said helical recess is essentially polyhedral in cross-section with straight or bent edges, more particularly comprising at least one and preferably at least two vertex  
10 line(s) extending in the longitudinal direction of said helical recess.

5. The ball retrieval device of claim 1, wherein bar-shaped guiding elements are arranged along said spool on  
15 which said carriage is smoothly movable, more particularly by means of rollers and/or slide bushings, thereby allowing it to be moved to the current winding or unwinding location of said thread on or from said spool with low resistance.

20 6. The ball retrieval device of claim 1, wherein the driving arrangement of said carriage is equipped with at least one driving roller extending into said helical recess, thereby allowing to produce, during the rotation of said spool, a longitudinal movement of said carriage in  
25 synchronicity with the pitch of said helical groove.

7. The ball retrieval device of claim 6,  
wherein at least one first driving roller is arranged such that it engages in a section of said helical recess  
30 containing no thread element, and a set of rollers composed of at least one second driving roller, preferably of two to three second driving rollers, of a smaller diameter relative to said first driving roller, said second driving rollers

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being disposed above a section of said helical recess in which said thread element is wound up.

8. The ball retrieval device of claim 1, wherein a brake  
5 device for said spool is provided near at least one end position for said carriage, said brake device essentially consisting of a brake support and of an impact element, said brake support comprising a brake element capable of being pressed on said spool and being displaceable relative to  
10 said impact element in the longitudinal direction of said spool, and said impact element comprising a depression means in operational connection with said brake element such that when said carriage meets said brake support, the latter is movable towards said impact element, whereby said brake  
15 element is pressed onto said spool by the depression means in said impact element in order to brake said spool.

9. A game appliance of the tennis racket type having a ball retrieval device of claim 1 incorporated in its handle.  
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10. The game appliance of claim 9, wherein said thread element runs across the impact surface from said handle to the opposite tip and through a guiding device disposed thereon.  
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11. The game appliance of claim 10, wherein said guiding device includes a first swivel axle extending essentially coaxially to the course of said thread element from said handle to said guiding device, and wherein said guiding  
30 device is equipped with guiding means, more particularly pulleys, in an exit that is laterally arranged in said guiding device, thereby allowing to pull out resp. retract

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said thread element in nearly any direction over said guiding means.

12. Application of the ball retrieval device of claim 1  
5 for playing or practicing golf, tennis, or baseball.

13. Application of the game appliance of claim 9 for playing or practicing golf, tennis, or baseball.

10 14. Application of the ball retrieval device of claim 1 for playing or practicing soccer.

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